

The results are clearly not sufficiently numerous to indicate in a satisfactory manner the period of variation. This, however, is probably short, and if the differences between the brightness of the two stars L. 3069 and L. 3105 are chiefly considered, the observations are all well represented by a period of about 4.2 days; the probable extent of the variation being about .7 of a magnitude. The star L. 3105 must have been near a maximum on November 21, 1885, and again on March 22, 1886, but not so near; and near a minimum on March 21, 1886.

The colour of the new variable was noted as "orange yellow" on February 12, 1886. The magnitudes both of this and L. 3069 are given as 5.0 in the *Uranometria Argentina*; Lacaille made them 6 mag., and in the Brisbane Catalogue they are also put at this figure. Behrmann's estimations are $5\frac{1}{3}$ mag. for L. 3069, and 5 mag. for L. 3105. The estimations of brightness given above were made by means of an opera-glass accurately focussed; the comparison stars were as under, the magnitudes being assumed from the "Harvard Photometry":—

	ϵ Canis Majoris	= 4.5 mag.
	μ " "	= 5.2 "
	17 " "	= 5.9 "
	HP. 1342 " "	= 6.1 "

The position of L. 3105 for 1887.0 is R.A. $7^h 55^m 0^s$, Dec. S. $48^\circ 55' 4''$.

West Brighton: Dec. 28, 1886.

On the Variability of the Spectrum of γ Cassiopeiae.
By Ralph Copeland, Ph.D.

On page 16 of the current volume of the *Monthly Notices*, Mr. O. T. Sherman quotes a passage from Miss Clerke's "History of Astronomy during the Nineteenth Century," which says that the brilliant rays indicative of hydrogen in the spectrum of γ Cassiopeiae died out during the nine years, 1874–1883. As to the fading of the rays there is room for little doubt, but the epochs of their disappearance and reappearance seem unfortunately quite indeterminate. Possibly the lines appear and vanish at comparatively short intervals, for there are two records of their having been seen here nearly in the middle of the nine years mentioned above. The most precise observation was made on Dec. 20, 1879, when testing a large experimental spectroscope which separated the D lines in the Moon's spectrum, and also showed four lines in that of the Great Nebula in *Orion* on the same night. The bright C line was then noted as "superbly

visible" by Lord Crawford (then Lord Lindsay), Mr. J. G. Lohse, and the writer. There is also a record of *two* bright lines having been seen by me on October 28, 1877, one of which was "well seen" about the place of F, the other being referred to about 477^{mm} of wave-length, and described as "another bright line" without further remark. No mention is made of C on this occasion. At present, however, January 11, 1887, C is extremely bright; and as it was not visible at Bothkamp on June 18, 1872, although the red end of the spectrum was specially examined and the position of the bright F determined, there cannot be the slightest doubt as to the variability of the spectrum, as pointed out by M. von Gothard several years ago.

It is very remarkable that the C line is obviously more variable than F* in the spectrum of this most interesting star; this must necessarily involve a certain amount of colour change, which may partly explain the very conflicting evidence respecting the star's variability.

*Lord Crawford's Observatory,
Dun Echt : Jan. 12, 1887.*

Spectroscopic Observations of the Motion of Stars in the Line of Sight, made at the Temple Observatory, Rugby. By Geo. M. Seabroke.

In the year 1879 I brought before the notice of the Society some, perhaps rather premature, results of my spectroscopic observations of the motions of stars towards or away from our system. Since that time I have been engaged, whenever a sufficiently long period without interruption could be obtained, in continuing this line of research.

A large number of my observations have been made with a view to perfecting instrumental arrangements, and being, of course, otherwise valueless, are not recorded.

The following arrangement appears at present to be satisfactory, and with it the results detailed below have been obtained.

The telescope is a silver-on-glass Newtonian Reflector of $12\frac{1}{8}$ inches aperture, and 6 feet 6 inches in focal length, equatorially mounted. The spectroscope has a collimator of a focal length of 12 inches and $\frac{3}{4}$ -inch aperture, and a Barlow lens in the telescope elongates the cone of rays to fit the same; a cylindrical lens is also used to give sufficient width of spectrum. The prisms are used twice, the rays of light passing first through the lower portions, and back through the upper portions to the observing

* The variability of the F-line was, however, remarked at Greenwich, on September 4, 1884, and may be generally inferred from its varying appearance on several other occasions.